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# GLAST Monthly PSR

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Software / Simulation

*December 2003*

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*Software Systems*

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# S/C Flight Software

07 January 2004



## ► **Accomplishments**

- *Baseline FSW development continues, but main focus is on ISMP Study*
  - *Preview: ISMP Mid-term Delta Manpower: 49 MM → 245 MM; Staff 3 → 12*
  - *Preview: ISMP Mid-term Delta Schedule: Earliest FSW CDR: Sept/Oct '04*
- *SS13/ISMP Mid-term Dry-run*
- *Multiple Discussions re: ISMP FSW changes/impacts*

## ► **Plans**

- *Mission Flight SW Code Review Held weekly (Thursdays)*
  - *Telecommand Inferencer Components (Decoder; Template, FSW & Payload Telecommand Maps)*
- *Trace ISMP/Mission/GNC Requirements Flowdown*

## ► **Issues**

- *Still desire Swift code to verify appropriateness of straight-ports to GLAST*
- *Some code being reviewed has no counterpart in [the formal] SDD*
  - *Some of this is due to the phasing of the SDD being a nearly a year ago now.*



# Software – LAT FSW (1 of 2)



## ► **Reviews / Responses**

- *Quick Look Review (QLR) held Nov. 21*
  - *Comments and Feedback Received from Review Team*
  - *Actions and Responses compiled and subsequently coordinated with SLAC. Agreement Reached.*
  - *Many of the actions to show first indicators at the FSW EM2 Design Peer Review*
- *Upcoming: EM-2 Design Peer Review*
  - *Jan 29 – All day.*
  - *Outline for content and materials provided to SLAC this week*
- *Capability Demo #1 (CD1)*
  - *Jan 30 AM.*
  - *As a plan to demonstrate software progress, SLAC is implementing an (approximately) monthly 'Demo' which will generally accompany the LAT Monthly at the end of each month. Demo will include some level of mapping to requirements, presentation of test (mini-TRR like) and a Results session.*



# Software – LAT FSW (2 of 2)



## ► Ongoing work / QLR Follow-up

### – Code Metrics –

- Definitions for Metrics proposed and agreed upon.
- When using the metrics for productivity estimates, the LAT FSW effort is being estimated at ~ 9 SLOC/day. This is “in the ballpark” with the 5-to-10 estimates that we find here on the Center.
  - Code 582 quotes ‘6’ when pressed, but prefers not to use this metric unless necessary.

### – Requirements

- Requirements for FSW in the SRS are at a high level. Attempts are underway to drill some of these areas down to the next level. Mike DeKlotz, a GSFC Team Member resident @ SLAC, is leading this effort.
- A combination of pulling requirements from other documents, creating requirements where there were none, and referencing some requirements in other controlled documents is the direction we’re headed.
  - A first report out on this will be done around the EM-2 DPR
- An attempt to provide Test Approach/Method for each requirement will be a part of the work.

### – Staffing – SLAC (Terry, Gunther, others) continue to interview to fill positions.

### – Schedule

- The schedule is undergoing change to reflect measurable milestones. Terry hopes to have the next 3-6 months in place by the end of January (for the EM-2 DPR).

### – Test Process

- Part of the milestones mentioned above will come in the form of capability demonstration.
- Monthly scheduled capability demonstrations (around the LAT Monthly meetings) will provide measuring stick for progress.



# Software – GBM FSW

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## ► **Status -**

- *EM-1 Build development and testing continues*
- *Encouraging milestones have been reached over the past month*
  - *1553 Initialization, plus Command/Response elements have been demonstrated to work functionally (not formally)*
  - *Software elements have been uploaded to the EM DPU and executed with success.*
  - *Data has been uploaded and programmed into the EEPROM on the DPU.*
- *Development continues on the Command & Telemetry Database for GSIS.*
  - *FSW development team provides commands and command data to GSIS lead, who then compiles it into the C&T Db.*

## ► **Upcoming: EM-1 Build Testing begins next month.**

- *EM-1 Build Test Procedures being worked*
- *EM-1 FSW load is the basis for the GSIS delivery in spring (April '04 still!?) to Spectrum Astro.*



# Issues/Problems

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## ► **LAT FSW**

- *Implementation of the QLR Recommendations will take time.*
- *Testing of builds and with adequate formality remains a concern.*
  - *Working to address this. Ramp up formality on demo's over time.*
- *SIIS delivery moving out complicates testing plans for LAT DAQ.*

## ► **SC FSW**

- *ISMP: Significant changes and added complexity may make this a risk item*
- *Our conceived approach is something they have no experience with – Running two processors concurrently, one in an 'open-loop'.*

## ► **GBM FSW**

- *Delivery of the SDIS (for/to SwRI) will aid in their testing capability.*
  - *SDIS continuing slide to the right hampers testing @ SwRI. Additional time for SwRI may be needed.*
- *Software schedule remains 'slightly behind' but, at this point, not getting 'further' behind.*



# Upcoming Events

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## ► **Spacecraft**

- *12/03 – Spring '04: Code Walk Thru Reviews for FSW & GNC (FSW)*
- *FSW Peer Review (date TBD)*
- *Ongoing ISMP Mid-term and Study*

## ► **LAT**

- *EM2 FSW Design Peer Review – 1/29/04*
- *EM2 (next) Version of FSW Requirements Spec – Maybe Feb 04*
- *FSW delivery to ISIS team (4/04) for ship to Spectrum: 6/04.*

## ► **GBM**

- *Build 1 Complete – Feb 2004*
- *ISIS delivery to Spectrum: 5/04*



# Rolling Wave Schedule

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- ▶ ***Included with SC and Instrument Rolling Wave...***